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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/822,691	03/30/2001	William Hreha	PA-Y1007	9223

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KARAMBELAS & ASSOCIATES
655 DEEP VALLEY DRIVE, SUITE 303
ROLLING HILLS ESTATES, CA 90274

EXAMINER	
SALL, EL HADJI MALICK	

ART UNIT	PAPER NUMBER
2157	

DATE MAILED: 12/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/822,691	HREHA ET AL.	
	Examiner	Art Unit	
	El Hadji M. Sall	2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. **DETAILED ACTION**

This action is responsive to the correspondence filed on January 19, 2005. Claims 1-18 are pending. Claims 1-18 represent dynamic resource allocation architecture for differentiated services over broadband communication network.

2. The finality of this application is being withdrawn due to a new ground of rejection.

3. Claims 1-18 are presented for examination.

4. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. For example, it is unclear what the word "system" in claim 1, line 10 is referring to which system (whether it is referring to the system mentioned in the preamble or the dynamic resource allocation system).

5. Claim 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: there is no any structural relationship between the preamble and the core of the claim.

6. The claimed language is broad. Thus, the claims are rejected with art as best understood by the examiner. The claimed language, especially claim 1, cannot be understood (the examiner tried his best in the previous Office Action to apply prior art to address the claims and he now realized that the claims language are not clear to apply the best art possible).

7. ***Claim Rejections - 35 USC § 102***

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

8. Claims 1-3, 5, 7 and 12-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Reichman et al. U.S. 6,240,073.

Reichmann teaches the invention as claimed including reverse link for satellite communication network (see abstract).

As to claim 1, Reichmann teaches a system that comprises a gateway that interfaces to an Internet provider or corporate network, a Local area network edge device, a satellite that provides a communication Link between the gateway and the local area network edge device, and one or more personal computers coupled by way of a network to the local area network edge device, a dynamic resource allocation system that supports differentiated services with different levels of priority, comprising:

an Internet protocol network (column 10, lines 47-50; column 1, lines 29-30) that comprises:

a classifier for identifying specific types of messages (column 15, lines 9-12, Reichmann discloses a classifier that classifies data received into three different types of messages (i.e. messages is identified before it is classified in types))

a dynamic assignment/multiple access (DAMA) communication protocol for transmitting data over the system (column 10, lines 16-20; column 3, lines 5-10).

As to claims 2 and 3, Reichmann teaches the dynamic resources allocation system recited in claims 1 and 2 respectively wherein the satellite is a non-processing satellite, and a bent pipe communication link between the local area network edge device and the gateway (column 8, lines 39-43; column 3, line 63 to column 4, line 7,

Reichmann discloses a satellite communication providing point to point channels or broadcast, and the reverse link with the forward link forming a complete two way communication system (i.e. the satellite is used as a relay to between the two networks, and between the VSAT's and the earth stations)).

As to claim 5, Reichmann teaches the dynamic resources allocation system recited in claim 1 wherein there is a DAMA communication protocol comprises an application detection algorithm (figure 13, item 306).

As to claim 7, Reichmann teaches the dynamic resource allocation system recited in claim 1 wherein the DAMA communication protocol comprises a resource request that generates a resource request to set required resources (column 11, lines 12-15; column 7, lines 11-13).

As to claim 12, Reichmann teaches the dynamic resource allocation system recited in claim 1 wherein the DAMA communication protocol comprises three modes, including fixed assignment, reservation assignment, and random assignment modes (column 10, lines 30-32, Reichmann discloses two modes of operation: random access and channel assignment mode (i.e. in which includes fixed assignment mode and reservation assignment mode); column 15, lines 48-50; column 3, lines 2-29; column 3, lines 57-59).

As to claim 13, Reichmann teaches the dynamic resource allocation system recited in claim 12 wherein, in the fixed assignment mode, a certain amount of bandwidth is allocated for the highest priority users (column 10, lines 38-41; column 15, lines 35-42).

As to claim 14, Reichmann teaches the dynamic resource allocation system recited in claim 12 wherein, in the reserved assignment mode, reservation bandwidth is allocated for users to request their demand without knowledge of others request transmissions (column 14, lines 52-55; column 3, lines 1-5).

As to claim 15, Reichmann teaches the dynamic resource allocation system recited in claim 12 wherein, in the random access mode, users transmit the data without making reservation (column 4, lines 58-61)

As to claim 16, Reichmann teaches the dynamic resource allocation system recited in claim 1 wherein the DAMA communication protocol comprises a collision resolution algorithm (column 5, lines 60-64; column 3, lines 41-43).

As to claim 17, Reichmann teaches the boundary between the random assignment mode and the reservation mode is movable in order to reduce the number of collisions whenever there are more best effort users using the system (column 3, lines 54-62).

As to claim 18, Reichmann teaches the dynamic resource allocation system recited in claim 1 wherein the DAMA communication protocol comprises a bandwidth request algorithm, a connection acceptance algorithm, a bandwidth usage detection algorithm, and a resource assignment algorithm (figure 13).

9. ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 4, 6, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reichman et al. U.S. 6,240,073 in view of Connors U.S. 6,449,267.

Reichmann teaches the invention substantially as claimed including reverse link for satellite communication network (see abstract).

As to claim 4, Reichmann teaches the dynamic resources allocation system recited in claim 1.

Reichmann fails to teach the satellite is a processing satellite comprising an onboard resource management element.

However, Connors teaches the satellite is a processing satellite comprising an onboard resource management element (column 2, lines 62-64, Connors discloses in a satellite network 100, the AA 108 resides at a the satellite (since the AA 108 is performs bandwidth allocation, when it is resided in the satellite, then it a "processing satellite")).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify in view of Connors to provide a processing satellite comprising an onboard resource management element. One would be motivated to do so to allow protection of resource allocation from earth disaster.

As to claim 6, Reichmann teaches the dynamic resource allocation system recited in claim 1.

Reichmann fails to teach explicitly the DAMA communication protocol comprises a resource requirement estimation algorithm that is based on queue statistics versus performance statistics.

However, Connors teaches the DAMA communication protocol comprises a resource requirement estimation algorithm that is based on queue statistics versus performance statistics (column 12, lines 1-6, Connors discloses the channel selection

module...and the random access queue ...to form delay estimates of the last packet in each queue).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Reichmann in view of Connors to provide the DAMA communication protocol comprising a resource requirement estimation algorithm that is based on queue statistics versus performance statistics. One would be motivated to do so to allow a comparison between a predicted transmission delay and a delay threshold (abstract).

As to claim 8, Reichmann teaches the dynamic resource allocation system recited in claim 1.

Reichmann fails to teach explicitly the DAMA communication protocol comprises a resource request that sends raw queue statistics to the gateway to set required resources.

However, Connors teaches the DAMA communication protocol comprises a resource request that sends raw queue statistics to the gateway to set required resources (column 4, lines 60-67, Connors discloses the apparatus comprises...a DAMA channel buffer...the resource unit request module for generating a resource request metric when indicated by an information rate of the input data, an for receiving an allocation or resource units via a receiver...for dequeuing input data from the DAMA; column 11, lines 14-16, Connors discloses FIG. 8 shows block diagram of a first node 1 12 such as an earth station 104 employing the technique of dequeuing data from the DAMA queue to the RA queue).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Reichmann in view of Connors to provide the DAMA communication protocol comprises a resource request that sends raw queue statistics to the gateway to set required resources. One would be motivated to do so to allow a comparison between a predicted transmission delay and a delay threshold (abstract).

As to claim 10, Reichmann teaches the dynamic resource allocation system recited in claim 1.

Reichmann fails to teach explicitly the gateway comprises an algorithm that accumulates all requests received at the same time.

However, Connores teaches an algorithm that accumulates all requests received at the same time (column 9, lines 58-62, Connors discloses the measured size of the received data packets is accumulated over time window Tc, as shown in 608, wherein the time window Tc is determined...).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Reichmann in view of Connors to provide the gateway comprises an algorithm that accumulates all requests received at the same time. One would be motivated to do so to allow monitoring each request.

11. Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reichman et al. U.S. 6,240,073 in view of Baker et al. 6,775,231.

Reichmann teaches the invention substantially as claimed including reverse link for satellite communication network (see abstract).

As to claim 9, Reichmann teaches the dynamic resource allocation system recited in claim 1.

Reichmann fails to teach the DAMA communication protocol comprises a weighted fair queuing algorithm that performs a weighted fair queuing that drains the queues while effectively utilizing the gateway assigned resources.

However, Baker teaches a weighted fair queuing algorithm (figure 3., column 1 , lines 54-60, Baker discloses It is known to support prioritization among different traffic sources or different classes by using queuing techniques such as Weighted Fair Queuing (WFQ), or Weighted Round-Robin (WRR) queuing. These techniques involve dividing traffic among multiple queues and allocating limited packet forwarding bandwidth among the queues according to weights assigned to each queue).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Connors in view of Baker to provide the DAMA communication protocol comprises a weighted fair queuing algorithm that performs a weighted fair queuing that drains the queues while effectively utilizing the gateway assigned resources. One would have been motivated to do so to allow prioritization among different traffic sources or different classes (column 1, lines 54-55).

As to claim 11, Reichmann teaches the dynamic resource allocation system recited in claim 1.

Reichmann fails to teach explicitly the gateway comprises an algorithm that functions to assign each edge device a time and frequency resources based upon service classes and consumer profile for each current and previous request.

However, Baker teaches the gateway comprises an algorithm that functions to assign each edge device a time and frequency resources based upon service classes and consumer profile for each current and previous request (column 1, lines 49-54, Baker discloses to support a Differential Services model such as Assured Forwarding, a network node internal to the service provider network must operate packet schedulers for each of its output interfaces to ensure that each class to be output via the interface receives service corresponding to its defined per hop behavior; column 4,lines 56-61, Baker discloses Network 200 represents a Differentiated Services domain. Edge nodes 202 classify incoming traffic into one of a plurality of behavior aggregates. In one embodiment, network 200 implements an Assured Forwarding service and edge nodes 202 classify packets to-be forwarded into network 200 into one of four service classes; see abstract).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Connors in view of Baker to provide the gateway comprises an algorithm that functions to assign each edge device a time and frequency resources based upon service classes and consumer profile for each current and previous

request. One would be motivated to do so to allow a differentiated service model achieved (abstract).

12. Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to El Hadji M Sall whose telephone number is 571-272-4010. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 571-272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

El Hadji Sall
Patent Examiner
Art Unit: 2157

ARIO ETIENNE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100